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MINERAL INDUSTRY SURVEYS

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COBALT IN APRIL AND MAY 1997

U.S. consumption of cobalt in January through May 1997 was 11% higher than consumption during the first 5 months of 1996. U.S. imports of cobalt metal and cobalt contained in chemicals during January through April 1997 were 25% higher than imports during the first 4 months of 1996. Exports of unwrought cobalt and cobalt contained in chemicals were 11% lower during January through April 1997 than exports during the same period in 1996. Trade data for May 1997 will be available in a subsequent issue.

Note

With the exception of prices, all data in this report have been rounded to no more than three significant digits. Totals and percentages were calculated by using unrounded data.

Update

On August 8, the Defense Logistics Agency (DLA) announced the results of its August 6 cobalt offer. Approximately 227 tons (500,000 pounds) of cobalt metal was available for sale on a sealed bid basis. The DLA awarded 251 tons (553,293 pounds) at a total value of \$10.1 million. Awards were made to the following companies: The Hall Chemical Co., Wickliffe, OH (25 tons); Glencore Limited, Stamford, CT (83 tons); Sovereign Recycling International, Bettendorf, IA (44 tons); FirstMiss Steel Corp., Hollsopple, PA (4 tons); Voss

Metals Co., Rockford, IL (12 tons); Considar, Inc., New York, NY (16 tons); Powmet Inc., Rockford, IL (3 tons); Phoenixx International Resources, Pittsburgh, PA (44 tons); and Sogem-Afrimet Inc., New York, NY (21 tons).

The next cobalt offer will be on a sealed-bid basis. The sale of approximately 227 tons (500,000 pounds) of cobalt is scheduled for September 23, 1997. For further information on DLA's cobalt sales program, please contact June Olmstead, DLA's contracting officer for cobalt, at (703) 767-6500.

Price update, in dollars per pound of electrolytic cobalt (Source Platt's Metals Week):

Week ending	Price range
July 18	21.90-23.10
July 25	22.50-23.00
August 1	22.50-23.25
August 8	23.00-23.75
August 15	23.00-23.75
August 22	23.00-23.75

Monthly averages

May	June
25.38	23.36

TABLE 1
U.S. REPORTED CONSUMPTION OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

Period	Metal 2/	Oxide and other chemical compounds 3/	Scrap	Total
1996:				
January-April	1,100	545 r/	520 r/	2,170 r/
January-May r/	1,370	671	649	2,690
January-December r/ 4/	3,240	1,610	1,660	6,500
Year 5/	3,640	1,710	1,670	7,010
1997:				
January r/	303	140	163	606
February r/	286	134	165	585
March r/	275	133	171	579
April	303	132	173	608
May	297	129	174	599
January-May	1,460	668	846	2,980

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes metal powder.

3/ Data may include other cobalt materials.

4/ Data based on monthly reports.

5/ Includes annual reports.

TABLE 2
U.S. REPORTED CONSUMPTION OF COBALT, BY END USE 1/

(Metric tons, contained cobalt)

End use	1996			1997	
	January- April	January- December 2/	Year 3/	April	January- April
Steel:					
Stainless and heat resisting	13	38	38	3	13
Tool	36	95	95	8	45
Superalloys	943 r/	2,910 r/	3,220	285	1,140
Alloys (excludes steels and superalloys):					
Magnetic alloys	233 r/	682 r/	728	59	227
Welding materials (structural and hard-facing) 4/	89 r/	268	285	30	104
Other alloys 5/	15 r/	45	65	W	W
Cemented carbides 6/	248 r/	721	721	78	256
Chemical and ceramic uses:					
Catalysts	227 r/	638	652	49	207
Driers in paints or related usage	244 r/	733	733	62	235
Ground coat frit	59 r/	159	159	14	57
Pigments	W	W	191	W	W
Miscellaneous and unspecified 7/	62 r/	211 r/	119	20	97
Total	2,170 r/	6,500 r/	7,010	608	2,380

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data based on monthly reports.

3/ Includes annual reports.

4/ Includes wear-resistant alloys.

5/ Includes nonferrous alloys.

6/ Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.

7/ Includes feed or nutritive additive, full-alloy steel, glass decolorizer, mill products made from metal powder, and data indicated by the symbol "W."

TABLE 3
U.S. REPORTED CONSUMPTION OF COBALT, BY END USE 1/

(Metric tons, contained cobalt)

End use	1996			1997	
	January- May	January- December 2/	Year 3/	May	January- May
Steel:					
Stainless and heat resisting	16	38	38	3	16
Tool	43	95	95	7	52
Superalloys	1,160 r/	2,910	3,220	302	1,440
Alloys (excludes steels and superalloys):					
Magnetic alloys	294 r/	682	728	61	288
Welding materials (structural and hard-facing) 4/	111 r/	268	285	30	134
Other alloys 5/	18 r/	45	65	W	W
Cemented carbides 6/	308 r/	721	721	54	310
Chemical and ceramic uses:					
Catalysts	275 r/	638	652	49	256
Driers in paints or related usage	302 r/	733	733	59	294
Ground coat frit	72 r/	159	159	13	70
Pigments	W	W	191	W	W
Miscellaneous and unspecified 7/	83 r/	211	119	20	118
Total	2,690 r/	6,500	7,010	599	2,980

r/ Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data based on monthly reports.

3/ Includes annual reports.

4/ Includes wear-resistant alloys.

5/ Includes nonferrous alloys.

6/ Includes diamond bit matrices, cemented and sintered carbides, and cast carbide dies or parts.

7/ Includes feed or nutritive additive, full-alloy steel, glass decolorizer, mill products made from metal powder, and data indicated by the symbol "W."

TABLE 4
U.S. REPORTED STOCKS OF COBALT MATERIALS 1/

(Metric tons, contained cobalt)

	Industry 2/				U. S. Government 3/
	Metal 4/	Oxide and other chemical compounds 5/	Scrap	Total	Metal
1996:					
April	253 r/	715	121 r/	1,090 r/	20,100
May	235 r/	712	122 r/	1,070 r/	19,800
June	215 r/	714	83 r/	1,010 r/	19,600
July	246 r/	715 r/	117 r/	1,080 r/	19,500
August	361 r/	442 r/	115 r/	919 r/	19,300
September	333 r/	326	116 r/	774 r/	19,000
October	288 r/	275	111 r/	675 r/	18,900
November	292 r/	280	114 r/	685 r/	18,800
December 6/	284 r/	272 r/	181 r/	737 r/	18,700
Yearend 7/	305	275	182	762	18,700
1997:					
January	329	275	123	727	18,500
February	295	263	114	672	18,400
March	320	245	140	705	18,300
April	368	252	88	708	17,900
May	389	239	83	710	17,800

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks reported by cobalt processors and consumers.

3/ Data from Defense Logistics Agency. Includes material committed for sale pending shipment.

4/ Includes metal powder.

5/ Data may include other cobalt materials.

6/ Data based on monthly reports.

7/ Includes annual reports.

TABLE 5
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Metals 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1996:								
March	540,000	\$36,000,000	41,400	\$2,030,000	167,000	\$2,270,000	616,000	1,750,000
April	432,000	27,500,000	147,000	6,370,000	104,000	1,340,000	566,000	2,310,000
May	475,000	28,700,000	62,100	2,730,000	55,200	786,000	533,000	2,850,000
June	600,000	36,100,000	82,200	3,710,000	88,800	1,170,000	682,000	3,530,000
July	590,000	34,800,000	93,900	4,440,000	60,200	778,000	674,000	4,200,000
August	480,000	24,800,000	51,900	2,010,000	38,600	405,000	528,000	4,730,000
September	434,000	20,600,000	58,600	2,440,000	101,000	954,000	503,000	5,240,000
October	347,000	17,100,000	71,000	3,030,000	101,000	1,010,000	425,000	5,660,000
November	481,000	22,300,000	61,100	2,640,000	90,700	911,000	550,000	6,210,000
December	400,000	19,400,000	64,100	2,400,000	155,000	1,340,000	494,000	6,710,000
January-December	5,760,000	327,000,000	824,000	36,200,000	1,260,000	14,800,000	6,710,000	XX
1997:								
January	629,000 7/	28,400,000 7/	85,900	3,080,000	182,000 7/	1,470,000 7/	746,000	746,000
February	567,000	24,300,000	56,900 7/	1,690,000 7/	157,000	1,540,000	649,000	1,400,000
March:								
Belgium	7,510 7/	304,000 7/	32,100	1,400,000	--	--	30,600	72,500
Brazil	20,000	784,000	--	--	--	--	20,000	54,100
Canada	77,000	3,570,000	--	--	--	--	77,000	296,000
Finland	49,000	2,180,000	24,100	1,020,000	49,800	442,000	79,800	297,000
France	6,750	493,000	1,810	145,000	--	--	8,060	16,000
Germany	9,330	629,000	--	--	--	--	9,330	13,600
Japan	--	--	2,190	161,000	--	--	1,580	3,560
Mexico	--	--	--	--	2,160	42,900	994	994
Netherlands	--	--	12,000	529,000	--	--	8,640	8,640
Norway	144,000	6,020,000	--	--	--	--	144,000	432,000
Russia	29,500	1,200,000	--	--	--	--	29,500	215,000
South Africa	1,130	57,500	--	--	--	--	1,130	1,880
Spain	--	--	--	--	--	--	--	12,400
United Kingdom	3,440	164,000	--	--	13,000 7/	34,900 7/	6,740	23,500
Zaire	81,500	3,090,000	--	--	--	--	81,500	220,000
Zambia	95,000	4,270,000	--	--	--	--	95,000	323,000
Total	524,000	22,800,000	72,200	3,250,000	65,000	519,000	594,000	1,990,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Unwrought cobalt, excluding alloys; includes cobalt cathode and cobalt metal powder.

3/ Includes cobalt sulfates, cobalt chlorides, cobalt carbonates, and cobalt acetates.

4/ Customs value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF COBALT, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Metals 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1996:								
April	432,000	\$27,500,000	147,000	\$6,370,000	104,000	\$1,340,000	566,000	2,310,000
May	475,000	28,700,000	62,100	2,730,000	55,200	786,000	533,000	2,850,000
June	600,000	36,100,000	82,200	3,710,000	88,800	1,170,000	682,000	3,530,000
July	590,000	34,800,000	93,900	4,440,000	60,200	778,000	674,000	4,200,000
August	480,000	24,800,000	51,900	2,010,000	38,600	405,000	528,000	4,730,000
September	434,000	20,600,000	58,600	2,440,000	101,000	954,000	503,000	5,240,000
October	347,000	17,100,000	71,000	3,030,000	101,000	1,010,000	425,000	5,660,000
November	481,000	22,300,000	61,100	2,640,000	90,700	911,000	550,000	6,210,000
December	400,000	19,400,000	64,100	2,400,000	155,000	1,340,000	494,000	6,710,000
January-December	5,760,000	327,000,000	824,000	36,200,000	1,260,000	14,800,000	6,710,000	XX
1997:								
January	629,000 7/	28,400,000 7/	85,900	3,080,000	182,000 7/	1,470,000 7/	746,000	746,000
February	567,000	24,300,000	56,900 7/	1,690,000 7/	157,000	1,540,000	649,000	1,400,000
March	524,000 7/	22,800,000 7/	72,200	3,250,000	65,000 7/	519,000 7/	594,000	1,990,000
April :								
Belgium	22,200	1,280,000	42,200	1,710,000	18,100	227,000	57,100	130,000
Brazil	25,000	942,000	--	--	--	--	25,000	79,100
Canada	68,000	3,440,000	--	--	2,750	51,700	69,300	365,000
Finland	130,000	4,950,000	43,900	1,540,000	165,000	1,430,000	206,000	503,000
France	5,870	394,000	5,270	341,000	--	--	9,660	25,700
Germany	10,900	747,000	--	--	--	--	10,900	24,600
Japan	--	--	1,760	106,000	--	--	1,270	4,830
Mexico	--	--	--	--	1,500	33,100	690	1,680
Netherlands	--	--	--	--	--	--	--	8,640
Norway	301,000	12,300,000	--	--	--	--	301,000	733,000
Russia	60,100	2,540,000	--	--	--	--	60,100	275,000
South Africa	450	23,000	--	--	--	--	450	2,330
Spain	--	--	--	--	--	--	--	12,400
United Kingdom	9,940	416,000	10,500	502,000	15,000	174,000	21,300	44,800
Zaire	61,600	2,560,000	--	--	--	--	61,600	281,000
Zambia	74,500	3,320,000	--	--	--	--	74,500	397,000
Total	770,000	32,900,000	104,000	4,190,000	203,000	1,910,000	899,000	2,890,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Unwrought cobalt, excluding alloys; includes cobalt cathode and cobalt metal powder.

3/ Includes cobalt sulfates, cobalt chlorides, cobalt carbonates, and cobalt acetates.

4/ Customs value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Unwrought cobalt alloys		Other cobalt: matte, waste and scrap 2/		Wrought cobalt and cobalt articles	
	Quantity	Value 3/	Quantity	Value 3/	Quantity	Value 3/
1996:						
March	1,340	\$107,000	71,200	\$1,370,000	21,800	\$1,410,000
April	3,940	213,000	48,700	954,000	19,000	1,270,000
May	3,970	339,000	34,500	694,000	19,800	1,270,000
June	2,630	108,000	17,400	292,000	13,800	1,070,000
July	4,540	345,000	51,000	943,000	12,300	868,000
August	8,080	313,000	84,600	2,020,000	10,500	676,000
September	2,500	237,000	14,900	765,000	12,500	878,000
October	483	34,100	47,900	644,000	17,500	1,020,000
November	17,500	946,000	20,400	552,000	9,680	714,000
December	3,560	207,000	55,300	2,270,000	15,300	1,100,000
January-December	60,500	3,790,000	566,000	11,700,000	178,000	11,500,000
1997:						
January	5,920	443,000	32,800 4/	1,070,000 4/	14,500	876,000
February	12,400	497,000	38,100 4/	1,280,000 4/	14,100	958,000
March:						
Belgium	132	16,000	10,100 4/	790,000 4/	--	--
Canada	--	--	3,190 4/	221,000 4/	606	22,700
Denmark	40	4,420	630	8,980	--	--
Germany	275	35,100	--	--	4,810	174,000
Japan	1,580	110,000	--	--	4,790	339,000
Norway	--	--	--	--	16,700	145,000
South Africa	--	--	11,800	83,900	--	--
Sweden	163	7,970	1,540	18,000	--	--
United Kingdom	160	7,880	2,140	46,200	12,200	702,000
Total	2,350	181,000	29,500	1,170,000	39,100	1,380,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other intermediate products of cobalt metallurgy; may include other cobalt-bearing materials from which cobalt is extracted, or from which cobalt-containing chemical compounds are manufactured.

3/ Customs value.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF ADDITIONAL COBALT MATERIALS, BY COUNTRY 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Unwrought cobalt alloys		Other cobalt: matte, waste and scrap 2/		Wrought cobalt and cobalt articles	
	Quantity	Value 3/	Quantity	Value 3/	Quantity	Value 3/
1996:						
April	3,940	\$213,000	48,700	\$954,000	19,000	\$1,270,000
May	3,970	339,000	34,500	694,000	19,800	1,270,000
June	2,630	108,000	17,400	292,000	13,800	1,070,000
July	4,540	345,000	51,000	943,000	12,300	868,000
August	8,080	313,000	84,600	2,020,000	10,500	676,000
September	2,500	237,000	14,900	765,000	12,500	878,000
October	483	34,100	47,900	644,000	17,500	1,020,000
November	17,500	946,000	20,400	552,000	9,680	714,000
December	3,560	207,000	55,300	2,270,000	15,300	1,100,000
January-December	60,500	3,790,000	566,000	11,700,000	178,000	11,500,000
1997:						
January	5,920	443,000	32,800 4/	1,070,000 4/	14,500	876,000
February	12,400	497,000	38,100 4/	1,280,000 4/	14,100	958,000
March	2,350	181,000	29,500 4/	1,170,000 4/	39,100	1,380,000
April:						
Canada	390	8,850	--	--	921	186,000
Denmark	44	8,840	--	--	--	--
Finland	--	--	25,400 4/	1,300,000 4/	30	2,370
France	--	--	--	--	1,400	82,600
Germany	50	4,900	15,000	298,000	2,270	108,000
Japan	2,500	170,000	--	--	7,060	364,000
Malaysia	--	--	--	--	254	21,600
Sweden	5,460	226,000	--	--	--	--
Taiwan	--	--	301	3,980	--	--
United Kingdom	--	--	32,800	355,000	12,800	762,000
Total	8,450	418,000	73,400	1,950,000	24,800	1,530,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes other intermediate products of cobalt metallurgy; may include other cobalt-bearing materials from which cobalt is extracted, or from which cobalt-containing chemical compounds are manufactured.

3/ Customs value.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 9
U.S. EXPORTS OF COBALT MATERIALS 1/

(Kilograms, gross weight of material, except as noted)

	Unwrought cobalt, powders, matte, waste and scrap 2/		Oxides and hydroxides		Salts and compounds 3/		Total cobalt content for the month 5/	Cobalt content, year to date 5/ 6/
	Quantity	Value 4/	Quantity	Value 4/	Quantity	Value 4/		
1996:								
March	214,000	\$13,000,000	29,100	\$1,070,000	6,260	\$96,100	237,000	436,000
April	168,000	9,640,000	53,800	1,470,000	15,100	132,000	210,000	647,000
May	145,000	6,930,000	22,700	689,000	20,500	346,000	166,000	812,000
June	159,000	7,500,000	13,300	514,000	20,600	310,000	173,000	986,000
July	64,300	2,870,000	24,100	575,000	27,200	271,000	88,200	1,070,000
August	88,700	3,160,000	7,970	277,000	26,600	292,000	101,000	1,170,000
September	58,200	2,370,000	35,600	1,060,000	42,800	224,000	94,200	1,270,000
October	73,100	3,390,000	25,700	790,000	31,900	104,000	99,300	1,370,000
November	84,000	3,510,000	27,400	777,000	78,100	316,000	122,000	1,490,000
December	105,000	3,340,000	54,400	1,440,000	112,000	678,000	171,000	1,660,000
January-December	1,310,000	65,500,000	346,000	10,200,000	446,000	4,050,000	1,660,000	XX
1997:								
January	60,800	2,350,000	30,300	979,000	34,100 7/	149,000 7/	90,700	90,700
February	101,000	2,480,000	48,100 7/	1,160,000 7/	65,500 7/	234,000 7/	152,000	242,000
March	82,000	3,990,000	50,100	1,530,000	18,500	253,000	123,000	365,000
April	143,000	5,760,000	93,100 7/	2,140,000 7/	5,430	74,100	211,000	576,000

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include other intermediate products of cobalt metallurgy, and unwrought cobalt alloys.

3/ Cobalt acetates and cobalt chlorides.

4/ Free alongside ship (f.a.s.) value.

5/ Estimated from gross weights.

6/ Year to date may include revisions to prior months.

7/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 10
U.S. EXPORTS OF WROUGHT COBALT, COBALT ORE, AND CONCENTRATES 1/

(Kilograms, gross weight of material, except as noted)

Period and country of origin	Wrought cobalt and cobalt articles		Cobalt ore and concentrates	
	Quantity	Value 2/	Quantity	Value 2/
1996:				
March	24,100	\$2,060,000	9,740	\$119,000
April	25,400	1,890,000	--	--
May	18,800	1,460,000	19,300	174,000
June	62,000	2,150,000	--	--
July	28,500	1,170,000	3,500	162,000
August	67,100	1,660,000	43,500	1,050,000
September	31,000	1,780,000	56,200	2,250,000
October	20,600	1,420,000	--	--
November	108,000	2,610,000	8,790	370,000
December	85,400	4,040,000	17,000	629,000
January-December	529,000	23,500,000	171,000	5,190,000
1997:				
January	44,300	3,020,000	24,600 3/	1,000,000 3/
February	20,900	1,420,000	80,500 3/	750,000 3/
March	68,200	3,720,000	12,200 3/	145,000 3/
April	66,100	2,590,000	300 3/	7,390 3/

1/ Data are rounded to three significant digits.

2/ Free alongside ship (f.a.s.) value.

3/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.